

Comments on the occurrence of 15 Albertine Rift endemic bird species in the Rwenzori Mountains National Park, Western Uganda

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The Rwenzori Mountains National Park (RMNP) supports 15 of the 24 Albertine Rift endemic bird species (Howard *et al.* 1996). During the second half of 1996 we surveyed the relative abundance and altitudinal distribution of these 15 species in the RMNP (Dehn & Christiansen 2001a, 2001b). Here we synthesise this new information with the results from previous studies.

Methods

Our survey methods involved a combination of observation and mist-netting, described elsewhere (Dehn & Christiansen 1998, 2001a, 2001b). Between July and the beginning of December 1996, we captured 911 birds in total, using 12,300 net metre hours (mh) of standardised mist-netting (438 individuals, 0.035 birds per mh), and approximately 15,900 mh of non-standardised mist-netting (473 individuals, 0.029 birds per mh). A standardised approach allowed us to compare the relative abundances from each of the five eastern study plots. Data from the Kakuka Ridge (1920–3000 m) provide additional information on similarities and differences between the avifauna on the western and eastern slopes of the Rwenzori Mountains (Table 1).

We have reviewed all available published and unpublished information on the Rwenzori avifauna, including results from the 1905–1906 Ruwenzori Expedition (Ogilvie-Grant 1910), which is the single most comprehensive study of flora and fauna ever carried out in these mountains. Other studies include an expedition by Weekes (1949a, 1949b) from 24 December 1946 to 1 January 1947, and surveys by Francis & Penford (1991) on 18–26 June and 12–21 July 1991. Results from these surveys are presented in Howard *et al.* (1996) along with the results from several other studies on flora and fauna in the RMNP. Mike Roy (pers. comm.) mist-netted birds at 2650 m in the Mubuku/Mahoma valleys from 15–22 December 1995, and Willard *et al.* (1998) carried out surveys from 10 November to 12 December 1990 and from 8 April to 1 May 1991.

It is difficult to determine species abundance in a forest habitat. Our data can probably only safely be used to compare relative abundances at different

altitudes in our own survey. Studies using different methods or studies carried out in different seasons may not be directly comparable. Several species are known to migrate to lower altitudes during the colder months (Fry *et al.* 1988) and studies carried out at different times of the year may therefore record fluctuations in population size or absence of a species. Seasonal changes in behaviour may also render a species more or less conspicuous without altering the actual abundance.

Except where indicated, order and nomenclature follow Ornithological Sub-committee of the EANHS (1996); however, where appropriate we have modernised the descriptor 'Rwenzori' in line with current Ugandan usage. All observations are from the Mubuku/Mahoma/Bujuku valleys unless otherwise stated.

Results

Handsome Francolin *Francolinus nobilis* A large francolin managed to escape after being wingshot by a member of the 1905–1906 Ruwenzori Expedition. This particular species was only observed on a few occasions and was never identified even though its cry was heard constantly in the thickest part of the forest (Ogilvie-Grant 1910). Francis and Penford (1991) recorded this species in the Mubuku/Bujuku valleys between 18–26 June 1991 (altitude unspecified). Willard *et al.* (1998) did not record this species during their surveys in 1990–1991. The Information Officer at the National Park Headquarters, Martin Ewanu, told us that regular sightings were made at approximately 2400 m on the Mubuku path leading to the Nyabitaba Hut. According to Britton (1980) this species is found at elevations from 2000–2500 m.

During our surveys, Handsome Francolins were easy to detect due to their loud calls; at dusk we could hear (and tape-recorded) several birds roosting close to our camp at 2400 m. Although our survey lasted 111 days and covered a 1200 m range in altitude, we only recorded this species in the vicinity of our camp at 2400 m. Solitary birds were observed walking along elephant tracks and several dodged our nets after being flushed. We managed to photograph one bird perched on a low branch after flushing it from a track. Dry leaves, twigs and branches cover the forest floor and walking on the smooth elephant tracks allows the birds to move quietly over relatively long distances. This species is probably hunted over most of its range; given its limited distribution and possible narrow altitudinal span, its ecology and general status merit further studies.

Rwenzori Turaco *Musophaga johnstoni* This species was discovered in the Ruwenzori by H.H. Johnston in 1901 at an elevation of about 2134 m. It is generally considered to be a high altitude turaco, and during the Ruwenzori Expedition it was commonly observed in the Mubuku Valley in January, February and March at about 2740 m. Sometimes it was observed as high as 3350 m and occasionally as low as 2590 m, but never lower (Ogilvie-Grant

Table 1. Albertine Rift Endemic bird species observed and captured in the Rwenzori Mountains National Park. The abundance intervals (a, b, c, d) indicate the relative densities, based on standardised periods of observations (heard or seen) and mist-netting (1 capture counted as 1 observation): a) >100, b) 50–99, c) 10–49, d) 1–9. Species not recorded during the standardised work, but recorded at other times, are marked '+', and species that were not recorded are marked '-'. Work on the Kakuka Ridge in Bundibugyo District was carried out between 1920 m and 3000 m

| Scientific name | Altitude (m) | | | | | |
|-------------------------------------|--------------|------|------|------|------|--------|
| | 1800 | 2100 | 2400 | 2700 | 3000 | Kakuka |
| <i>Francolinus nobilis</i> | – | – | d | – | – | – |
| <i>Musophaga johnstoni</i> | – | – | c | b | c | + |
| <i>Alethe poliophrys</i> | c | c | c | d | – | + |
| <i>Cossypha archeri</i> | + | d | c | b | b | + |
| <i>Phylloscopus laetus</i> | – | d | c | b | – | + |
| <i>Apalis ruwenzorii</i> | c | c | a | a | a | + |
| <i>Batis diops</i> | – | – | c | c | – | + |
| <i>Cryptospiza shelleyi</i> | – | d | + | d | d | – |
| <i>Cryptospiza jacksoni</i> | + | d | d | d | – | + |
| <i>Nectarinia alinae</i> | c | c | c | d | – | + |
| <i>Nectarinia purpureiventris</i> | – | c | b | d | – | – |
| <i>Nectarinia regia</i> | – | + | a | a | a | + |
| <i>Nectarinia (afra) stuhlmanni</i> | – | + | d | d | a | – |
| <i>Parus fasciiventer</i> | – | d | d | d | d | + |
| <i>Ploceus alienus</i> | + | c | d | d | d | + |

1910). Weekes (1949b) obtained a specimen at 2130 m and found this species regularly up to 3700 m. Francis & Penford (1991) recorded it in the Mubuku/Bujuku valleys (altitude unspecified) on no more than three out of 11 days. Willard *et al.* (1998) captured this species at 2700 m and at 3400 m. Fry *et al.* (1988) record it as locally common in forests at 2200–3400 m in Rwenzori, but most abundant in bamboo and *Podocarpus* at about 3000 m just below the tree heath zone.

We first recorded the Rwenzori Turaco at 2400 m on the eastern slopes, and only observed them once on the Kakuka Ridge at approximately 2400 m. Small groups were commonly seen and heard at 2700 m between the Mubuku Valley and the Mahoma Valley; it appeared to be uncommon elsewhere. The National Park's Information Officer, Katsuba Flavienus, told

us that this species moves into the lower elevational montane forest during periods with heavy rain. Rwenzori Turacos were occasionally observed feeding together with Black-billed Turaco *Tauraco schuetti* (see Dehn & Christiansen 2001b).

Red-throated Alethe *Alethe poliophrys* This alethe was procured by G. Archer in the Rwenzori in 1902. During the Ruwenzori Expedition it was recorded in the Mubuku Valley between 2130–2440 m in January, between 1980–2440 m in February and between 2130–2740 m in March. Francis & Penford (1991) caught five birds at Kakuka (c. 1970 m) and Kilembe (c. 1670 m). Willard *et al.* (1998) had 6–10 captures at 1960 m, 11–20 captures at 2075 m and 2–5 captures at 2700 m. Roy netted 7 of this species (out of a total of 114 captures).

During our study, the Red-throated Alethe was frequently netted (39 captures out of 911). We made 13 observations at 1800 m, 19 observations at 2100 m, 23 observations at 2400 m, 8 observations at 2700 m, but none at 3000 m. Overall this species appears to be common at elevations about 1800–2400 m in the Mubuku Valley. According to Ogilvie-Grant (1910), these birds habitually follow ‘soldier ants’. We did not observe this behaviour even though ‘soldier ants’ are very common at 1800–2700 m in the Mubuku/Mahoma valleys.

Archer’s Robin Chat *Cossypha archeri* Members of the Ruwenzori Expedition encountered this species in the Mubuku Valley between 1830–2740 m in January, between 2135–3355 m in February and between 1980–2440 m in March. It was numerous in the bamboo zone and up to about 3960 m (Ogilvie-Grant 1910). Willard *et al.* (1998) had 2–5 captures at 2075 m, 11–20 captures at 2700 m, 6–10 captures at 3400 m and a sight record at 4000 m. Using their day frequency method, Francis & Penford (1991) recorded Archer’s Robin Chat on 4 out of 11 days. Roy captured 3 birds ($n = 114$).

During our study the abundance of this species increased monotonically with increasing altitude between 2100 m and 3000 m. Mist-netting resulted in only seven captures on the eastern slopes and one capture on the western Kakuka Ridge.

Red-faced Woodland Warbler *Phylloscopus laetus* In 1906 this species was very plentiful in the forest zone and lower parts of the bamboo zone, and was recorded between 1830–2745 m in January, between 2135–2745 m in February and between 2440–2745 m in March (Ogilvie-Grant 1910). Francis and Penford (1991) recorded the day frequency of this species to be 5/11 days and netted one bird ($n = 83$). Willard *et al.* (1998) had one sight record at 1960 m, 6–10 captures at 2075 m and 6–10 captures at 2700 m. Roy captured one bird ($n = 114$).

We recorded this species with increasing abundance ascending from 2100 m up to 2700 m. Only five birds were netted ($n = 911$).

Collared Apalis *Apalis ruwenzorii* This species is recorded in southwest Uganda (Rwenzori) between 1550 m and 3100 m (Urban *et al.* 1997). It was encountered between 1830–3050 m during the Ruwenzori Expedition, but rarely seen above 2590 m. It was numerous in the forest zone and low margins of the bamboo zone, but never seen in the treetops (Ogilvie-Grant 1910). Francis & Penford (1991) recorded this species on 11/11 days and mist-netted four individuals ($n = 83$). Willard *et al.* (1998) had 11–20 captures at 1960 m, 6–10 captures at 2075 m and 11–20 captures at 2700 m. Roy captured five birds ($n = 114$).

We recorded this species on both the eastern and western slopes. It was common at 1800 m and 2100 m and very common between 2400–3000 m on the eastern slopes. This was a frequently captured species during our study with a total of 49 individuals ($n = 911$).

Stripe-breasted Tit *Parus fasciiventer* Stuhlmann also obtained this species in 1893, probably high up in the Butagu Valley on the western slopes of the Rwenzori (Ogilvie-Grant 1910). It was observed between 1830–3350 m in the Mubuku Valley from January to March 1906, where it was common in the forest zone but rarely seen as high as 3350 m (Ogilvie-Grant 1910). Willard *et al.* (1998) captured one bird at 1960 m and at 2075 m, and had 2–5 captures at 2700 m. Francis and Penford (1991) found this species at all their three study areas in the forest zone, recording it on 3/11 days or less.

In the eastern valleys we recorded this species less than 10 times at each study plot ranging from 2100 m up to 3000 m. One or possibly two individuals were busy collecting lichens, *Usnea* sp., for nest-building at our camp at 3000 m, between 28 November and 1 December. The chosen location was a cavity in an 8 m tall *Erica*; the entrance hole was 4 cm in diameter and positioned approximately 3 m above ground level. The Stripe-breasted Tit was also found with some regularity on the Kakuka Ridge.

Rwenzori Batis *Batis diops* This species is most abundant in low closed bamboo forest ridges up to about 2800 m (Urban *et al.* 1997). The Rwenzori Expedition observed it between 1830–2590 m in the forest zone where it was very numerous in dense undergrowth and high trees (Ogilvie-Grant 1910). Willard *et al.* (1998) had 2–5 captures at 2075 m and 6–10 captures at 2700 m. Roy captured four birds ($n = 114$).

We frequently recorded Rwenzori Batis on both the western and eastern slopes. Several song-posts were mapped at 2400 m and 2700 m. Birds with brood patches were captured in August and October (Urban *et al.* give a record of a female that had recently laid in mid-November). We found this species to be sympatric with Chin-spot Batis *B. molitor* on both the eastern and western slopes (Dehn & Christiansen 2001b).

Blue-headed Sunbird *Nectarinia alinae* This sunbird was recorded between 1680–2740 m in the Mubuku Valley from January to April 1906 (Ogilvie-Grant 1910). Francis & Penford (1991) recorded it on 8/11 days and netted

11 birds ($n = 83$). Willard *et al.* (1998) had > 20 captures at 1960 m, > 20 captures at 2075 m and > 20 captures at 2700 m. Roy captured 11 birds ($n = 114$).

We frequently observed this species foraging near the ground for nectar and insects and captured 48 birds ($n = 911$). During our survey this species appeared to be common between 1800–2400 m and uncommon at 2700 m.

Purple-breasted Sunbird *Nectarinia purpureiventris* During the Rwenzori Expedition one bird was shot at 2130 m in the Mubuku Valley; this was the only encounter. Francis & Penford (1991) recorded this species in the Mubuku/Bujuku valleys on no more than 3/11 days in the forest zone. Willard *et al.* (1998) had 2–5 captures at 1960 m and 2–5 captures at 2075 m.

We only had three captures ($n = 911$) at 2400 m, but the species was very conspicuous at 2100 m, 2400 m and 2700 m. It appeared confined to a narrow altitudinal range with a maximum abundance at about 2400 m. It congregated in large flowering *Symphonia globulifera* trees with up to 50 birds feeding together, along with several other species such as Sharpe's Starling *Cinnyricinclus sharpii*, Slender-billed Starling *Onychognathus tenuirostris* and Yellow White-eye *Zosterops senegalensis*.

Regal Sunbird *Nectarinia regia* This species was observed in the Mubuku Valley between 1830–3050 m from January to April 1906, and 30 specimens were obtained (Ogilvie-Grant 1910). Francis & Penford (1991) recorded Regal Sunbirds on 4/11 days in the forest but none was mist-netted. Willard *et al.* (1998) had 2–5 captures at 1960 m, > 20 captures at 2075 m and > 20 captures at 2700 m. Roy mist-netted 13 birds ($n = 114$).

During our study 115 *N. regia* were netted ($n = 911$), making it the second most frequently captured species after the Yellow-whiskered Greenbul *Andropadus latirostris* (149 captured). It was the most commonly netted and observed species at 2400 m (25 netted, $n = 98$, > 100 observations), 2700 m (33 netted, $n = 105$, > 100 observations) and 3000 m (25 netted, $n = 89$, > 100 observations).

Stuhlmann's Double Collared Sunbird *Nectarinia stuhlmanni* The Ornithological Sub-committee (1996) lists this taxon as a sub-species of Greater Double-collared Sunbird *N. afra*, *contra* Britton (1980). This sunbird was obtained by Stuhlmann in 1893, probably high up in the Butagu Valley on the western slopes of the Rwenzori (Ogilvie-Grant 1910). In East Africa it is found only in the Rwenzori Mountains (Britton 1980). It was observed in the Mubuku Valley between 3050–3415 m from January to April 1906, but appeared to be most plentiful at about 3050 m (Ogilvie-Grant 1910). Willard *et al.* (1998) (who term it *N. afra stuhlmanni*) had 2–5 captures at 2075 m, > 20 captures at 2700 m and > 20 captures at 3400 m.

Bamboo *Arundinaria alpina* and montane forest are gradually replaced by sub-alpine heather at approximately 3000 m in the Bujuku Valley. In this transitional zone between bamboo and giant heather, Stuhlmann's Double

Collared Sunbird was the second most commonly netted and observed species (Regal Sunbird being the most common). We observed Stuhlmann's Double Collared Sunbird infrequently at 2100 m and 2400 m, and netted one ($n = 105$) at 2700 m and 24 ($n = 89$) at 3000 m. This abrupt change in abundance suggests strong affinities for habitats at about 3000 m.

Strange Weaver *Ploceus alienus* The members of the Ruwenzori Expedition collected a "fine series" of this weaver between January and March 1906. This species was recorded between 1680–2590 m, "frequenting both the forest and the more open country below" (Ogilvie-Grant 1910). Francis & Penford (1991) recorded the Strange Weaver on 5/11 days in the forest zone and mist-netted 2 birds ($n = 83$). Willard *et al.* (1998) had > 20 captures at 1960 m, 6–10 captures at 2075 m and 6–10 captures at 2700 m.

During our study this species was infrequently recorded, with less than 15 observations at each elevational study plot. It appeared to be equally common throughout the transect. A total of 20 birds were captured ($n = 911$).

Shelley's Crimsonwing *Cryptospiza shelleyi* Collar *et al.* (1994) comment of this globally Vulnerable species that "it is generally rare (only common in a few threatened forests; but it shows curious fluctuations in abundance, suggesting seasonal movements) and appears to have suffered a dramatic decline since the 1970s for reasons unknown". A male specimen was apparently obtained by G. Archer in the Rwenzori in 1902, but the exact locality is not recorded (Ogilvie-Grant 1910). Shelley's Crimsonwing was not met with by the members of the Ruwenzori Expedition, nor recorded by Weekes (1949b), Francis & Penford (1991) and Howard *et al.* (1996). Roy captured one bird ($n = 114$, sex unspecified) in December 1995. From 10 November to 12 December 1990 and from 8 April to 1 May 1991, Willard *et al.* (1998) found it with some regularity from 1960 m to 3400 m, with 2–5 captures at 1960 m, 1 capture at 2075 m, 6–10 captures at 2700 m and 1 capture at 3400 m.

We mist-netted five male birds and no females. If males and females were equally abundant and easy to capture, then the probability of mist-netting five males would be only 3%. This may have been a simple chance event, or reflect some behavioural difference between the sexes (for example, females might have been busy incubating eggs). There is no information on the breeding season of this species (Brown & Britton 1980). The five males were netted at 2100 m (1), 2400 m (2), 2700 m (1) and 3000 m (1). Only one bird was observed at 2700 m, in the low dense vegetational scrub of mixed *Mimulopsis elliottii* (Acanthaceae) and *Piper capense* (Piperaceae). All four crimsonwing species (*C. jacksoni*, *C. reichenovii*, *C. salvadorii* and *C. shelleyi*) appear to favour dense undergrowth habitats that can probably only be surveyed effectively by mist-netting. We found Shelley's Crimsonwing to be the rarest *Cryptospiza* in the RMNP, with just five captures out of a total of 76 for all species.

Dusky Crimsonwing *Cryptospiza jacksoni* This species was observed between 1830–2590 m from December 1905 to March 1906 (Ogilvie-Grant 1910). Willard *et al.* (1998) had 11–20 captures at 1960 m, 6–10 captures at 2075 m and 2–5 captures at 2700 m. Roy did not capture this species ($n = 114$).

The Dusky Crimsonwing was the only *Cryptospiza* that we commonly mist-netted, with a total of 47 birds ($n = 911$). This species was infrequently observed in the Mubuku/Mahoma/Bujuku valleys and on the Kakuka Ridge, but was also recorded in heavily degraded forest patches at 1700 m outside the National Park.

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